

PORTLAND HARBOR RI/FS
APPENDIX P
FLOOD RISE EVALUATION
FEASIBILITY STUDY

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P1. FLOOD RISE EVALUATION

An assessment of impacts on water surface elevation during high flow events was conducted to evaluate compliance with ARARs. An objective of balancing the amount of material dredged and placed in the river was considered during the development and evaluation alternatives as a means to minimize the potential for unacceptable flood rise, and compliance with federal and state floodplain management ARARs.

The Executive Order for Floodplain Management (Executive Order 11988) requires federal agencies carrying out their responsibilities to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Agencies are to evaluate the potential effects of any actions they may take in a floodplain to ensure that their planning programs and budget requests reflect consideration of flood hazards and floodplain management, including the restoration and preservation of such land areas as natural, undeveloped floodplains. The order emphasizes the importance of evaluating alternatives to avoid impacts and incompatible development in floodplains, minimizing the potential harm to floodplains if the only practicable alternative requires siting an action in a floodplain, and providing early and adequate opportunities for public review of plans and proposals involving actions in floodplains. Under this concept, the special flood hazard area (commonly referred to as the 100-year flood plain) is divided into floodway and floodway fringe. If a proposed channel modification affects the floodway such that the river stage is increased for the base flood condition, such a conveyance reduction would constitute a floodway encroachment. If a proposed floodway action such as construction of a sediment cap results in a regulatory floodway encroachment, then either:

- The encroachment must be mitigated (offset) such that there is no net increase in river stage; or
- The floodway is realigned or adjusted in consultation with the requisite authorities.

A simplified evaluation was conducted for each alternative by comparing estimated volumes of capping and dredging. This evaluation did not consider uncertainties associated with changes in waterway use, changes in management of reservoirs within the Willamette River watershed and the effects of global climate change that may result in changes to the flood rise elevation. Uncertainties associated with potential channel deepening were also not considered. In addition, this evaluation is specific to DMM Scenario 2 because it does not consider construction of an in-water CDF. While a CDF could impact flood rise on a local scale, it would be designed to minimize potential impacts, and it is excluded from this simplified evaluation.

Although proposed riverbank excavations assume removal of material prior to the placement of caps, this information was not included in the flood rise evaluation due the

uncertainties associated with the extent of contamination in the riverbanks. Volumes of material to be removed during dredging were calculated on an SDU and site-wide basis. Estimated volumes of materials placed are based on the total volume of the following:

- Sand
- Armor material
- AquaGate
- AquaBlok™
- Beach mix
- Organoclay

Quantities of fill materials and dredged volumes are summarized in **Tables P-1** through **P-15** (excluding construction of the CDF at Terminal 4). Evaluated on a Site-wide scale, the volume of fill for each alternative is less than the total volume removed, resulting in a net cut volume. While this is not entirely balanced with respect to dredging and placement of fill material, it does indicate that there is no net increase in channel depth, minimizing potential increase to flood rise levels due to the application of technology assignments, fulfilling the requirements for protection of human health and the environment and compliance with ARARs with respect to flood rise. In addition, the uncertainty of flood rise impacts on a site-wide scale is lessened with increasing net dredged volumes.

Tables

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